5.3C Worksheet Name _____ Per ____

Prove the identities.

1. $(\cos x-\sin x)^2=1-2\sin x\cos x$

2. $\tan x+\sec x=\frac{\cos x}{1-\sin x}$

3. $\frac{\sec^2 x-1}{\sin x}=\frac{\sin x}{1-\sin^2 x}$

4. $\tan^2 x-\sin^2 x=\tan^2 x\sin^2 x$

5. $\frac{\sin t}{1-\cos t}+\frac{1+\cos t}{\sin t}=\frac{2(1+\cos t)}{\sin t}$

6. $\sin^3 x\cos^3 x=(\sin^3 x-\sin^5 x)(\cos x)$

7. $\frac{1-3\cos x-4\cos^2 x}{\sin^2 x}=\frac{1-4\cos x}{1-\cos x}$

8. $\frac{1}{\tan\beta}+\tan\beta=\sec\beta\csc\beta$

Find all solutions on the interval of $[0,2\pi)$.

9. $2\cos x\sin x-\cos x=0$

10. $\sqrt{2}tanxcosx - tanx = 0$

11. $3\cot^2 x-1=0$

12. $\sec x\csc x=2\csc x$

Find all solutions.

13. $4\cos^2 x-4\cos x+1=0$

14. $3\sin t=2\cos^2 t$

15. $2\sin^2 x+3\sin x+1=0$

16. $2\cos 2x=1$

17. $\cos 2x = -1$

18. $\tan^2 3x = 3$

19. $\cos 2x(2\cos x+1)=0$

20. $\tan\frac{x}{3} = 1$

21. $\csc^2 2x=3\csc 2x+4$

Use a graphing utility to approximate the solutions(to three decimal places) on the interval $[0,2\pi)$.

22. $2\sin x + \cos x = 0$

23. $\csc^2 x + 0.5\cot x = 5$

24. $4\cos^2 x - 2\sin x + 1=0$